

Status in Sweden and the new diploma for airtightness testers



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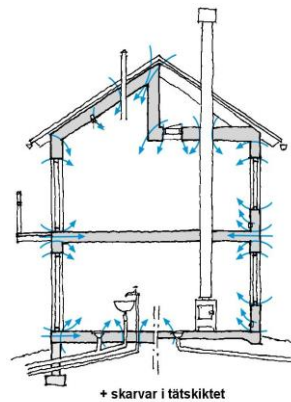


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Situation in Sweden

Swedish Building Code

- Requirements concerning energy use, no specific requirements concerning airtightness.
- Only for small buildings (less than 100m²) the requirement is specific
- Testing is mandatory in Sweden



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Situation in Sweden

The developer

- has the responsibility to fulfil these requirements on energy
- is the actor who can formulate the requirement of the future building's airtightness (better than the assumed airtightness in the energy calculation)
- has contracts with different actors to make sure that these requirements or even more specific and demanding requirements are fulfilled.
- Decide if the building is going to be tested, and in that case - when and how.



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Why do we need the diploma for airtightness testers?

- The building industry (developers/designers/contractors) have a increasing awareness about the importance of airtight building envelopes!
- For Swedish Passivehouses there is a demand – on a voluntary basis (0,3 l/m²s at 50Pa pressure difference)
- More consultants offer the service to do the airtightness tests
- Until this year there was no education or diploma which validates the consultants competecs and ability to do a correct airtightness test
- The first diplomas for airtightness testers were sent in january 2014.
- Today there are 20 (soon 25) diplomas in Sweden.



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Diploma for airtightness testers

The diploma shows that the consultant has qualifications to

- do a airtightness test according to EN13829 (mostly according to method B).
- be the expert to help the client to reach the requirement using the method ByggaL.

Pre-qualifications:

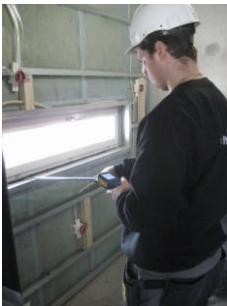
- Experience during 5 years from designing/construction or
- Educational background from 3 years at University (building)
- More than 5 airtightness tests



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Tester competence - Training and validation



Education content during 2,5 days:

- Why airtight building envelopes?
- The position/role as a diplomed tester
- The standard EN 13829
- building preparation, calculation areas, calibrations...
- The steps of the test and use of equipment on site
- Identify laeakage on site
- How to write a report
- The building process and priciples and actions for airtightness
- Requirements
- Method – ByggaL

Validation/evaluation:

- Theoretical examination
- Practical testing with the own equipment including test report



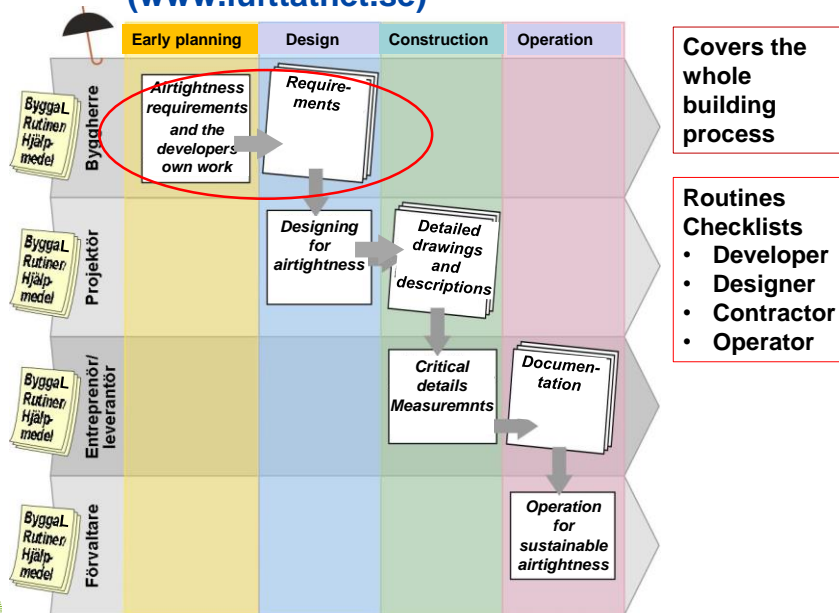
The diplomed airtightness tester and the buildings process:

- The diplomed airtightness tester also get education to follow a method to ensure airtightness during the building process
- This gives the consultant a possibility to give extra value to the client
- The method - ByggaL



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Introduction to the method/guideline (www.lufttathet.se)



Developer's requirements for good airtightness

Quantify the requirement

Ex. 1: Air leakage < 0,2 l/m²s

Ex. 2: Air leakage < 0,3 l/m²s

Ex. 3: Air leakage < 0,4 l/m²s

m² area of the building envelope

Verify by measurements

At an early stage in the building process (improvements can still be done to a lower cost)

When the building is completed



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Developer's requirements concerning activities for good airtightness

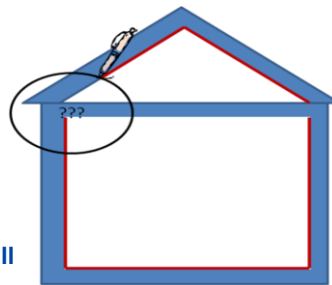
During the design stage the designer shall

- Appoint someone to be responsible
- Perform information/training of designers
- Ensure durable solutions
- Ensure that solutions can be constructed
- Specify and describe details - documentation

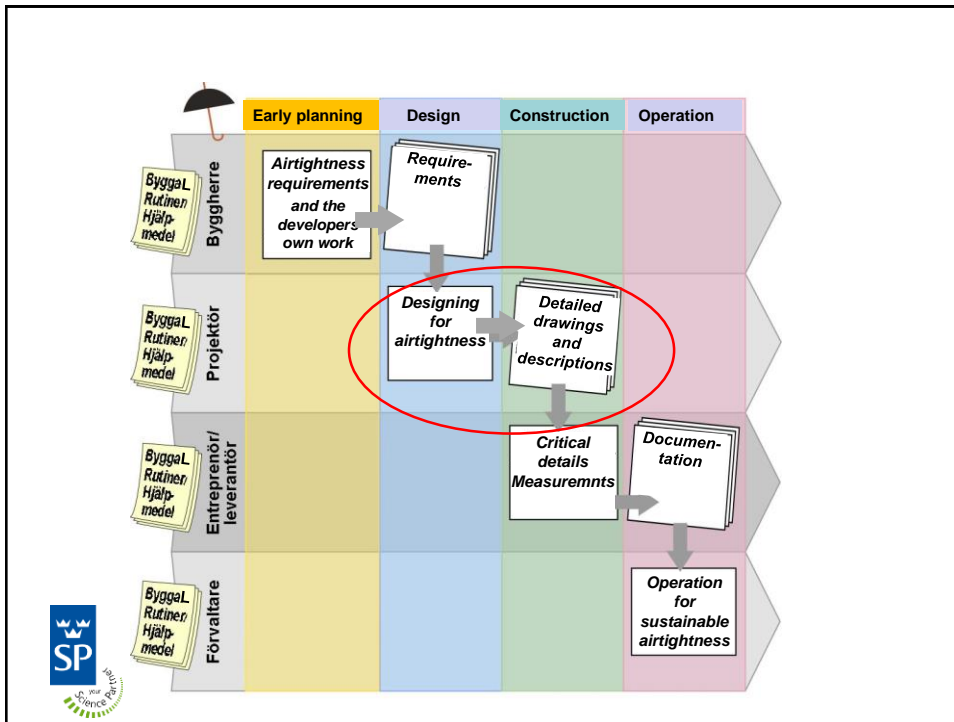
During the construction stage the contractor shall

- Appoint someone to be responsible
- Plan the work, together with the designers
- Information/training in the building site.
- Make inspections
- Measure airtightness performance and trace leakage at an early stage
- Measure airtightness when the building is completed

Documentation



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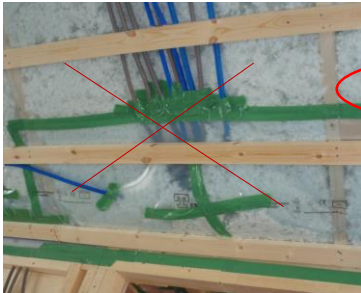
Designer's work during design stage - routines



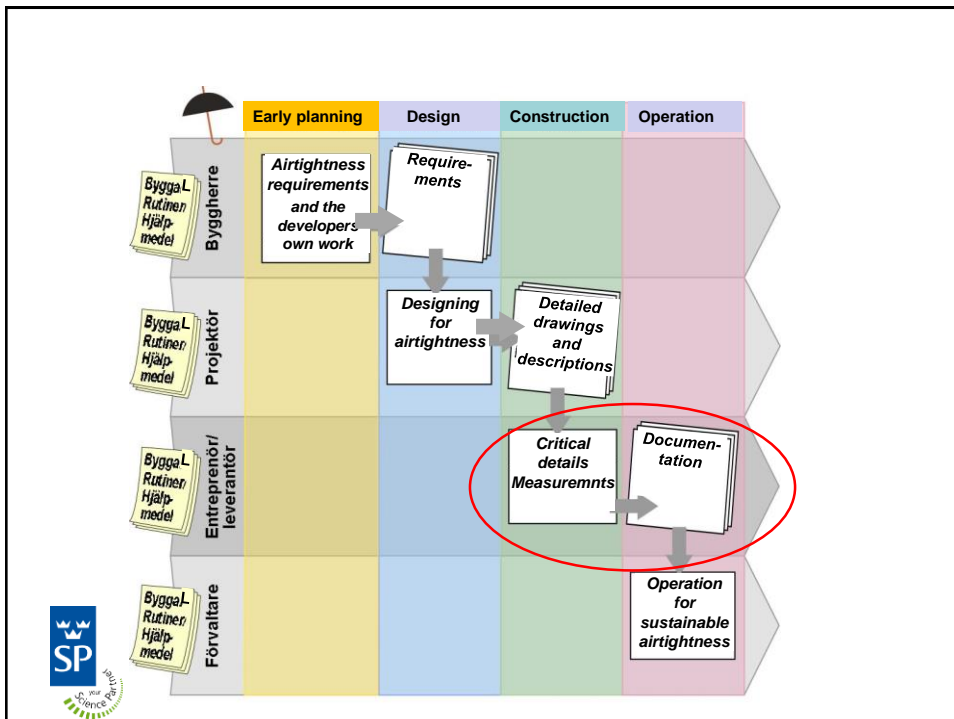
- Appoint someone to be responsible
- Go through and agree on the requirements
- Internal information / training - material is available.
- Design and documentation
- Internal reviews
- Go through and check the completed documents with contractors
- Identify critical production stages together with contractor - checklist
- Record all information and results
- Hand over results and documentation to contractor



To be considered during design stage - examples



- The airtightness of the materials
- Durability of solutions
- Minimise the number of joints
- Minimise the number of penetrations
- Plan details of airtight penetrations, such as ventilation ducts, chimneys, electrical installations etc
- Plan window and door connections
- Plan connections to walls / floors / ceilings



Contractor's work during construction stage - routines



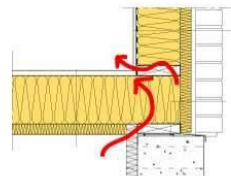
- Appoint someone to be responsible
- Go through documents with the designers concentrating on critical details and work
- Prepare and follow an inspection plan
- Internal information, should include sub-contractors – education material is available
- Work planning (working methods, materials and critical solutions before each new workmoment)
- Measurements of airtightness at an early stage – work description is available. Measurements and detection of leaks should allow involved on the building site to take part – improves the knowledge about airtight solutions
- Do final airtightness tests
- Documentation
- Feed back of experience to the designers

Future actions in Sweden

- There is a need to define some recommendations and guidelines in connection to EN13829 in the Swedish context (areas in multi-family building for example)
- Experience-meetings for diplomed airtightness testers is planned once a year to support knowledge exchange and communication of new information. Starting in 2015.



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Thank you for your attention!

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